

PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(19)



(54) IMPROVEMENTS IN OR RELATING TO ELECTRONIC COMPONENTS

(71) We, THE GENERAL ELECTRIC COMPANY LIMITED, of 1, Stanhope Gate, London, W1A 1EH, a British Company, do hereby declare the invention, for which we 5 pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to electronic components of the type having a generally cylindrical body from one end of which protrudes at least one connecting wire. The term "generally cylindrical" includes non-circular as well as circular cross-sections. 10 Such components are particularly useful for mounting on circuit boards with their axes perpendicular to the board. However, damage to electronic components can occur in various ways. Firstly, damage can occur 15 due to heat transfer along connecting wires or by direct contact during soldering operations. Secondly, flux used during soldering can cause damage, as can be solvents for removing any such flux. Further, circuit 20 components are often closely packed making it difficult to read the information on the sides thereof so that tilting of the body of a component to facilitate reading such information can cause a fracture of the joint 25 between the connecting wire and the component.

Accordingly, the invention provides an 30 electronic component having a generally cylindrical body from one end of which protrudes at least one connecting wire by means 35 of which the components can be connected to a circuit board with the axis of the component generally perpendicular to the board and with said end adjacent the board and 40 having a flexible skirt which extends beyond said end and surrounds the connecting wire.

Preferably, all the connecting wires protrude from said end. The skirt may be made 45 of a plastics material such as polyethylene terephthalate, polycarbonate, polypropylene or polyvinyl chloride.

In order that the invention may be fully understood, one embodiment thereof will now be described by way of example with reference to the accompanying drawings, in 50 which:—

Figure 1 shows a normal component mounted on a printed circuit board; and

Figure 2 shows a component according to 55 the invention mounted on a printed circuit board.

Referring to Figure 1, a component 1 having connecting wires 2 protruding from one end is mounted on a printed circuit board 3 by soldering the lead-out wires 2 to the board. Damage to the component 1 can occur due to heat transfer through the connecting wires or by direct contact with the hot circuit board. In addition, flux can rise through the holes in the circuit board by 60 capillary action.

As shown in Figure 2, the provision of 65 a skirt 4 of flexible material prevents the connecting wires 2 being made shorter than the length of its skirt, thus reducing the risk of damage due to heat transfer up the wires and by direct contact with the board. Also a pocket of air which acts as a heat shield is 70 provided between the component 1 and the hot surface of the circuit board.

The skirt is conveniently made of a plastics material such as polyethylene terephthalate, polycarbonate, polypropylene or polyvinyl chloride. The skirt may be in the form of a sleeve of material which is heat shrunk onto the body of the component. Alternatively, if the component is a wound capacitor, the skirt may be formed by winding in 75 with the overwrap one or more turns of sheet material, which for example may be 6—100 microns thick. A suitable length for the skirt beyond the end of the component is 1mm to 10mm.

As the skirt 4 supports the weight of the 80 component, the connecting wires may be made thinner than for a skirtless component. The thinner wires in combination with the flexibility of the skirt allow the 85 90

component to be tilted for examination without damage to the connection between the connecting wires and the component. The flexibility of the skirt also improves the 5 "clip in" quality by helping to take up tolerances when preformed leads are used. As shown in Figure 2 serrations 5 are provided in the bottom edge of the skirt to allow 10 air circulation to prevent condensation build up.

WHAT WE CLAIM IS:—

1. An electronic component having a generally cylindrical body from one end of which protrudes at least one connecting wire by means of which the component can be connected to a circuit board with the axis of the component generally perpendicular to the board and with said end adjacent the 15 board and having a flexible skirt which extends beyond said end and surrounds the connecting wire.
2. A component according to claim 1, in which all the connecting wires protrude from 20 said end.
- 25 3. A component according to claim 1 or 2, in which the skirt is made of a plastics material.

4. A component according to claim 3 in which the plastics material is polyethylene terephthalate, polycarbonate, polypropylene or polyvinyl chloride. 30
5. A component according to any preceding claim in which the skirt is in the form of a sleeve which is heat shrunk onto the body of the component. 35
6. A component according to any of claims 1 to 4 in which the component is a wound capacitor and in which one or more turns of sheet material are wound in with the overwrap to form the skirt. 40
7. A component according to any preceding claim, in which the skirt extends from 1mm to 10mm beyond the end of the component. 45
8. A component according to any preceding claim in which the free end of the skirt is serrated.
9. An electronic component substantially as hereinbefore described with reference to Fig. 2 of the accompanying drawing. 50

For the Applicants,
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COMPLETE SPECIFICATION
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